AMENDMENTS TO THE CLAIMS

1. (Currently amended) A circuit comprising:

an active pull-up device coupled to a one-wire bus, wherein the active pull-up device is configured to decrease the transition time of a voltage signal on the one-wire bus transitioning from a first voltage level to a second, higher voltage level; and

a level shift circuit coupled to the active pull-up device ~~wherein the active pull-up device is coupled to a one-wire bus~~ and ~~the level shift circuit is also coupled~~ to circuit ground, said level shift circuit providing a substantially constant reference voltage level different than said circuit ground, wherein the active pull-up device is configured to operate with respect to the constant reference voltage level for decreasing the transition time of said voltage signal.

2. (Currently amended) The circuit of claim 1 wherein the voltage signal on the one-wire bus includes a bias signal equal to the reference voltage level ~~where one connection point of the level shift circuit is coupled to a reference connection point of the active pull-up device and another connection point of the level shift circuit is connected to circuit ground~~.

3. (Currently amended) The circuit of claim ~~1 where~~ 2 wherein the active pull-up device has a voltage sense switch that is coupled to the level shift circuit, said active pull-up device being configured to initiate the decrease of said transition time when the voltage sense switch determines that a measured level of the voltage signal has risen above a designated threshold voltage level, said voltage signal being measured with respect to said reference voltage level.

4. (Original) The circuit of claim 1 where the level shift circuit is a diode with its cathode connected to circuit ground and its anode connected to a reference connection point of the active pull-up device.

5. (Currently amended) The circuit of claim 1 ~~where at least one I-button device is coupled to the one-wire bus and coupled to circuit ground~~ further comprising:

at least one communication device coupled to the one-wire bus and configured to output said voltage signal for communicating over the one-wire bus, wherein the at least one communication device is configured to include a bias signal equal to the reference voltage level in the voltage signal.

6. (Currently amended) The circuit of claim ~~1 where~~ 5 further comprising:

a transceiver having a processor, wherein the transceiver is coupled to the one wire bus and ~~to circuit ground~~ is configured to communicate with said at least one communication device over said one-wire bus, wherein communication signals generated by the transceiver are biased by said reference voltage level.

7. (Currently amended) A circuit comprising:

a level shift circuit connected to a circuit ground and configured to output a substantially constant reference voltage level different than said circuit ground; and

an active pull-up device coupled to the level shift circuit and to a one-wire bus, wherein the active pull-up device is configured to output a first designated voltage level on the one-wire bus when a measured voltage level of a communication signal on the bus rises above a second designated voltage level, said active pull-up device measuring the voltage level of the communication signal with respect to the constant reference voltage level ~~where the level shift circuit provides a reference voltage to the active pull-up device and the level shift circuit is connected to circuit ground~~.

8. (Currently amended) The circuit of claim 7 ~~where the active pull-up device is coupled to a one-wire bus~~ wherein the communication signal includes a bias signal equal to the reference voltage level.

9-10. (Cancelled)

11. (Currently amended) The circuit of claim ~~7 where~~ 8 wherein the level shift circuit is a diode with its cathode connected to circuit ground and its anode connected to a reference connection point of the active pull-up device.

12. (Currently amended) The circuit of claim 7 ~~where at least one I-button device is coupled to a one-wire bus and coupled to circuit ground where the active pull-up device is coupled to the one-wire bus~~ further comprising:

at least one communication device coupled to the one-wire bus and configured to output said voltage signal for communicating over the one-wire bus, wherein the at least one communication device is configured to include a bias signal equal to the reference voltage level in the voltage signal.

13. (Currently amended) The circuit of claim ~~8 where~~ 12 further comprising:

a transceiver having a processor, wherein the transceiver is coupled to the one wire bus and ~~to circuit ground~~ is configured to communicate with said at least one communication device over said one-wire bus, wherein communication signals generated by the transceiver are biased by said reference voltage level.

14. (New) A communication system comprising:

a one-wire bus;

a transceiver connected to the one-wire bus;

a communication device connected to the one wire-bus, wherein the communication device is configured to apply a voltage signal to the bus for communicating with the transceiver;

an active pull-up device connected to the one-wire bus and configured to raise the voltage signal to a designated level when the voltage signal passes above a threshold level; and

a level shift circuit disposed between the active pull-up device and a circuit ground, said level shift circuit providing a substantially constant reference voltage level above or below said circuit ground, wherein the active pull-up device is configured to operate with respect to the constant reference voltage level for raising the voltage signal to the designated level, and wherein the voltage signal applied by the communication device includes a bias voltage equal to said constant reference voltage level.